Statewide/Rural Intelligent Transportation Systems (ITS) Crash Prevention And Safety Systems 2002 Survey

Animal Warning Systems

These systems are intended to prevent animal-vehicle collisions in areas prone to animal accidents. Animal warning systems are located at migration routes and where there is a history of animal-vehicle collisions. Technology applied to this problem detects the presence of animals and provides a warning to on-coming drivers.

Bicycle Warning Systems

These systems aid visibility and awareness in thos situations where it is difficult to see bicyclists on the side of the road, especially in tunnels and hilly roadways. These systems function by drawing the attention of drivers to the presence of bicyclists on the highways. Electronic sensors may be deployed to detect the presence of bicyclists or the system may be manually operated, for example where the bicyclist activates a warning sign prior to entering a tunnel.

Environmental Road Hazard Warning Systems

Environmental hazard warning systems detect reduced visibility conditions or other environmental hazards and provide a warning to travelers. These use sensors to detect conditions of low visibility due to fog, heavy rains, or snow white-out, or to detect icy or wet road conditions. Warnings are provided to travelers using changeable message signs or other means. The system may also distribute information on the road hazard to traffic management centers, public safety agencies, or other traffic information systems. Additional system capabilities may include the use of in-pavement lights as an aid to visibility.

Intersection Crossing Detection Systems

These systems are aimed at addressing safety of drivers entering intersections, often for vehicles approaching the intersection of a major road from a minor one. In these cases, an intersection crossing detection system is intended to reduce crossing-path accidents at intersections cntrolled by stop signs on the minor road. Typically a dynamic message sign assiciated with the stop sign informs the driver of the presence of vehicles on the major road, and may include whether they are approaching from the right or the left.

Pedestrian Safety Systems

These systems are intended to improve safety for pedestrians at crosswalks by providing warnings to drivers about the presence of pedestrians or to the pedestrians about the presence of vehicles. Pedestrians can activate these systems or sensors can detect the presence of pedestrians. Warning can be provided in the form of illiminated crosswalk signs. Additionally, in-pavement lights may be used at crosswalks to alert motorists to the presence of a pedestrian crossing or preparation to cross the street.

Rail-highway Crossing Safety Systems

These systems are used to detect and warn vehicles about the approach of a train at a reail-highway intersection or to inform the train of the presence of vehicles or pedestrians at an intersection. For example, buses may be equipped with receivers and display devices capable of announcing the presence of a train by picking up a signal sent out by the intersection. Similar reception devices may be used by emergency vehicle and dispatch centers so they may be alerted to the approaching trains and make provisions for finding crossing points at bridges or underpasses in order to avoid the at-grade crossings.

Road Geometry Warning Systems

Roadway deometry warning systems detect potential safety risks due to roadway deometry features such as curves and steep grades, and provide warnings to drivers. Capabilities vary from a general warning to all vehicles to sophisticated systems providing tailored warnings to specific vehicles. These systems may use sensors to detect vehicle weight, height, and speed. Based on these data, warnings can be directed to specific vehicles through dynamic vehicle message signs, flashers, or other menus.

Animal Warning System Name:

SystemName

Location(s) (e.g., route and mile point or description)

Location

What is the current system status?

- ☐ Currently deployed — Status
- ☐ Planned, Planned deployment date — PlannedDeploymentDate

What is the road classification where this system is located?

- ☐ Freeway or other limited access highway — RoadClass
- ☐ Other multi-lane highway (non-limited access)
- ☐ 2-lane highway

What road technologies are used for roadside detection of animal presence?

- ☐ Radar detection of on-road objects — RadarDetection
- ☐ Video — Video
- ☐ Electric detection fence using microwave or infrared sensors — ElectricDetectionFence
- ☐ Radio transmitter collars for animals — RadioTransmitterCollars
- Other — AnimalDetectionOther

What technologies are used to communicate with vehicles?

- ☐ Dynamic message sign — DynamicMessageSign
- ☐ Highway advisory radio — HighwayAdvisoryRadio
- ☐ In-vehicle — InVehicle
- ☐ Flashing lights — FlashingLights
- Other — DriverWarningOther

With what other systems or agencies does this system interface?

- ☐ Data archiving — DataArchiving
- ☐ Public safety — PublicSafety
  - ☐ State police — PublicSafetyStatePolice
  - ☐ Local agencies — PublicSafetyLocalAgencies
- ☐ Traffic management — TrafficManagement
- ☐ Incident management — IncidentManagement
- ☐ Traveler information / Information service providers — TravelerInformation
- ☐ Other states — OtherStates
- Other — InterfacesOther

Bicycle Warning System Name:

SystemName

Location(s) (e.g., route and mile point or description)

Location

What is the current system status?

- ☐ Currently deployed — Status
- ☐ Planned, Planned deployment date — PlannedDeploymentDate

What is the road classification where this system is located?

- ☐ Freeway or other limited access highway
- ☐ Other multi-lane highway (non-limited access) — RoadClass
- ☐ 2-lane highway

What is the situation where this system is located?

- ☐ Tunnel
- ☐ Road section with restricted visibility — TunnelRoadSection
- ☐ Other — PlacementOther

What technologies are used for roadside detection of bicyclists?

- ☐ Manual (activated by bicyclist) — Manual
- ☐ Automatic (sensor detects bicyclist) — Automatic
- ☐ Other — BicycleDetectionOther

What technologies are used to communicate with vehicles?

- ☐ Dynamic message sign — DynamicMessageSign
- ☐ Highway advisory radio — HighwayAdvisoryRadio
- ☐ In-vehicle — InVehicle
- ☐ Flashing lights — FlashingLights
- ☐ Other — DriverWarningOther

With what other systems or functions does this system interface?

- ☐ Data archiving — DataArchiving
- ☐ Public safety — PublicSafety
  - ☐ State police — PublicSafetyStatePolice
  - ☐ Local agencies — PublicSafetyLocalAgencies
- ☐ Traffic management — TrafficManagement
- ☐ Incident management — IncidentManagement
- ☐ Traveler information / Iinformation service providers — TravelerInformation
- ☐ Other states — OtherStates
- ☐ Other — InterfacesOther

Environmental Road Hazard Warning System Name:

SystemName

Location(s) (e.g., route and mile point or description)

Location

What is the current system status?

- ☐ Currently deployed — Status
- ☐ Planned, Planned deployment date — PlannedDeploymentDate

What is the road classification where this system is located?

- ☐ Freeway or other limited access highway
- ☐ Other multi-lane highway (non-limited access) — RoadClass
- ☐ 2-lane highway

What hazards are detected by this system?

Visibility

☐ Fog	Fog
☐ Snow	Snow
☐ Smoke	Smoke
☐ Dust/Sand	DustSand
☐ Wind	Wind
☐ Other	VisibilityConditionOther

Road Conditions

☐ Ice on bridge	IceOnBridge
☐ Icy road	IcyRoad
☐ Wet road	WetRoad
☐ Obstructions on road	Obstructions
☐ Flooding	Flooding
☐ Other	RoadConditionOther

What technologies/methods are used to detect hazardous conditions?

Forcasted/Actual Conditions

☐ National Weather Service	NationalWeatherService
☐ Weather modeling	WeatherModeling
☐ Road Weather Information Systems (RWIS)	RWIS

On-Site Sensors

☐ Closed circuit television (CCTV)	CCTV
☐ Infrared	InfraRed
☐ Particulate	Particulate
☐ Wind speed detector	WindSpeedDetector
☐ In-pavement sensor	InPavementSensor
☐ Other	DetectionMethodologyOther

What information does this system collect about vehicles for use in assessing the need for a warning?

- ☐ Vehicle speed — VehicleSpeed
- ☐ Vehicle classification — VehicleClassification
- ☐ Weight (weigh-in-motion) — WeighInMotion
- ☐ Other [ ] — RoadsideSensorsOther

What technologies are used to communicate witih vehicles?

- ☐ Dynamic message signs — DynamicMessageSigns
- ☐ Flashing lights — FlashingLights
- ☐ In-vehicle warning — InVehicleWarning
- ☐ Highway advisory radio — HighwayAdvisoryRadio
- ☐ In-pavement roadside edge lights — InPavementRoadsideEdgeLights
- ☐ Other [ ] — RoadsideCommunicationMediaOther

Does the system warning include a variable speed limit?

- ☐ Yes
- ☐ No

VariableSpeedLimit

What type of message is provided by this system?

- ☐ Tailored information provided to specific vehicle — TailoredMessage
- ☐ Generic warning message provided to all vehicles — GenericMessage

With what other systems or agencies does this system interface?

- ☐ Data archiving — DataArchiving
- ☐ Public safety — PublicSafety
  - ☐ State police — PublicSafetyStatePolice
  - ☐ Local agencies — PublicSafetyLocalAgencies
- ☐ Traffic management — TrafficManagement
- ☐ Incident management — IncidentManagement
- ☐ Traveler information / Information service providers — TravelerInformation
- ☐ Other states — OtherStates
- ☐ Other [ ] — InterfacesOther

Intersection Crossing Detection System Name:

SystemName

Location(s) (e.g., routes intersecting, route and mile point)

Location

What is the current system status?

- ☐ Currently deployed
- ☐ Planned, Planned deployment date

Status

PlannedDeploymentDate

What is the road classification where this system is located?

- ☐ Freeway or other limited access highway
- ☐ Other multi-lane highway (non-limited access)
- ☐ 2-lane highway

RoadClass

Where are vehicle detection sensors located?

- ☐ Sensors on all legs of an intersection — AllLegs
- ☐ Sensors on the major road only — MajorRoad
- ☐ Other — IntersectionCrossingDetectionOther

What technologies are used to communicate with vehicles?

- ☐ Dynamic message sign — DynamicMessageSign
- ☐ Flashing lights — FlashingLights
- ☐ In-vehicle — InVehicle
- ☐ Other — IntesectionCrossingWarningsOther

With what other systems or agencies does this system interface?

- ☐ Data archiving — DataArchiving
- ☐ Public safety — PublicSafety
  - ☐ State police — PublicSafetyStatePolice
  - ☐ Local agencies — PublicSafetyLocalAgencies
- ☐ Traffic management — TrafficManagement
- ☐ Incident management — IncidentManagement
- ☐ Traveler information / Information service providers — TravelerInformation
- ☐ Other states — OtherStates
- ☐ Other — InterfacesOther

Pedestrian Safety System Name:

SystemName

Location(s) (e.g., route and mile point or description)

Location

What is the current system status?

- ☐ Currently deployed — Status
- ☐ Planned, Planned deployment date — PlannedDeploymentDate

What is the road classification where this system is located?

- ☐ Freeway or other limited access highway
- ☐ Other multi-lane highway (non-limited access) — RoadClass
- ☐ 2-lane highway

What technologies are used to detect the presence of pedestrians and/or vehicles?

- ☐ Vehicle detection sensors (e.g., loops, video, acoustic) — VehicleDetectors
- ☐ Microwave pedestrian detector — Microwave
- ☐ Infrared pedestrian detector — Infrared
- ☐ Manually operated pedestrian detector — Manual
- ☐ Other — PedestrianDetectorsOther

What technologies are used to communicate with pedestrians and/or vehicles?

- ☐ In-pavement lights illuminate crosswalk — InPavementLights
- ☐ Illuminated crosswalk signs — IlluminatedCrosswalkSigns
- ☐ Dynamic message signs — DynamicMessageSigns
- ☐ Flashing lights — FlashingLights
- ☐ In-vehicle warning — InVehicle
- ☐ Other — PedestrianWarningOther

What type of message is provided by this system?

- ☐ Alert to approaching vehicles to pedestrian presence — AlertToVehicles
- ☐ Alert to pedestrian of approaching vehicle — AlertToPedestrian
- ☐ Other — AlertOther

With what other systems or agencies does this system interface (share data)?

- ☐ Data archiving — DataArchiving
- ☐ Public safety — PublicSafety
  - ☐ State police — PublicSafetyStatePolice
  - ☐ Local agencies — PublicSafetyLocalAgencies
- ☐ Traffic management — TrafficManagement
- ☐ Incident management — IncidentManagement
- ☐ Traveler information / Information service providers — TravelerInformation
- ☐ Other states — OtherStates
- ☐ Other — InterfacesOther

Rail-highway Crossing Safety System Name:

SystemName

Location(s) (e.g., route and mile point or description)

Location

What is the current system status?

- ☐ Currently deployed — Status
- ☐ Planned, Planned deployment date — PlannedDeploymentDate

What is the road classification where this system is located?

- ☐ Freeway or other limited access highway
- ☐ Other multi-lane highway (non-limited access) — RoadClass
- ☐ 2-lane highway

What information is collected by this system?

- ☐ Train presence — Trainpresence
- ☐ Train speed — Trainspeed
- ☐ Detection of vehicle intrusion — VehicleIntrusion
- ☐ Detection of pedestrian intrusion — PedestrianIntrusion
- ☐ Second train approaching — SecondTrain
- ☐ Other — InformationCollectionOther

What technologies are used to communicate with vehicles?

- ☐ Dynamic message sign — DynamicMessageSign
- ☐ Highway advisory radio — HighwayAdvisoryRadio
- ☐ In-vehicle warning — InVehicle
  - ☐ Ambulance — InVehicleAmbulance
  - ☐ Police vehicles — InVehiclePolice
  - ☐ Transit — InVehicleTransit
  - ☐ Other — InVehicleOther
- ☐ Flashing lights — FlashingLights
- ☐ Other — DriverWarningOther

With what other systems or agencies does this system interface?

- ☐ Data archiving — DataArchiving
- ☐ Public safety — PublicSafety
  - ☐ State police — PublicSafetyStatePolice
  - ☐ Local agencies — PublicSafetyLocalAgencies
- ☐ Traffic management — TrafficManagement
- ☐ Incident management — IncidentManagement
- ☐ Traveler information / Information service providers — TravelerInformation
- ☐ Other states — OtherStates
- ☐ Other — InterfacesOther

Road Geometry Warning System Name:

SystemName

Location(s) (e.g., route and mile point or description)

Location

What is the current system status?

- ☐ Currently deployed — Status
- ☐ Planned, Planned deployment date — PlannedDeploymentDate

What is the road classification where this system is located?

- ☐ Freeway or other limited access highway
- ☐ Other multi-lane highway (non-limited access) — RoadClass
- ☐ 2-lane highway

What hazards are handled by this system?

- ☐ Truck roll over — TruckRollOver
  - ☐ Curve — TruckRollOverCurve
  - ☐ Downhill — TruckRollOverDownhill
- ☐ All vehicles — AllVehicles
  - ☐ Curve — AllVehiclesCurve
  - ☐ Downhill — AllVehiclesDownhill
- ☐ Other — HazardsOther

What information does this system collect about vehicles?

- ☐ Vehicle speed — VehicleSpeed
- ☐ Vehicle classification — VehicleClassification
- ☐ Vehicle weight (weigh-in-motion) — WeighInMotion
- ☐ Vehicle height — VehicleHeightDetection
- ☐ Other — RoadsideSensorsOther

What information does this system collect about environmental conditions to determine whether a warning is needed?

- ☐ Road surface condition — RoadSurfaceCondition
- ☐ Other — EnvironmentalSensorsOther

What technologies are used to communicate witih vehicles?

- ☐ Dynamic message sign — DynamicMessageSigns
- ☐ Flashing lights — FlashingLights
- ☐ In-vehicle warning — InVehicleWarning
- ☐ Highway advisory radio — HighwayAdvisoryRadio
- ☐ In-pavement roadside edge lights — InPavementRoadsideEdgeLights
- ☐ Other — RoadsideWarningOther

What type of message is provided by this system?

- ☐ Generic warning message provided to all vehicles — MessageTypeGeneral
- ☐ Tailored information provided to specific vehicle — MessageTypeSpecific

With what other systems or agencies does this system interface?

- ☐ Data archiving — DataArchiving
- ☐ Public safety — PublicSafety
  - ☐ State police — PublicSafetyStatePolice
  - ☐ Local agencies — PublicSafetyLocalAgencies
- ☐ Traffic management — TrafficManagement
- ☐ Incident management — IncidentManagement
- ☐ Traveler information / Information service providers — TravelerInformation
- ☐ Other states — OtherStates
- ☐ Other _____ — InterfacesOther